



# **Centralization of supply chain management operations: the case of Unilever Ultralogistik**

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## **Biographic Note**

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## **Abstract**

**Purpose** – This research aims to analyse the centralization of supply chain management (SCM) and planning in growing global fast moving consumer goods (FMCG) companies and the necessary process for implementation of a centralization strategy.

**Design/Methodology/Approach** – The research is based on the case study of Unilever's implementation of Ultralogistik, centralized management of logistic operations. We develop a straightforward and flexible framework on what is required for a company to implement a supply chain management operations' centralization strategy, describing the main stages of the process and its central activities. Moreover, the study includes steps in order to allow the identification of the most suitable methods to apply it and the expected outcomes from this strategy.

**Pertinence/Impact** – The design of global production and distribution networks is a research area that has been gaining interest but most of the existing related literature focuses on location, capacity, and opening or closing facilities. The management of Supply Chain operations' centralization has been scarcely investigated, especially when related to the management of global distribution networks and its effects on the performance of the company. Moreover, the case in analysis - Unilever Ultralogistik - is a distinctive case for its innovative characteristics and the scale of application.

**Findings** – Centralization should only occur when the company has the prerequisites needed to implement it. Several requisites for centralization of Unilever's SCM were recognised: supply chain of large dimension with high speed of business growth, functional products, cost focused network, ownership of majority of locations, supply chain vertically integrated to some extent. It is also important to establish Key Performance Indicators (KPIs) throughout the process of centralization to monitor its performance. KPIs should reflect the company's goals for the centralization procedure, such as increasing standardization or reducing network cost, as to better evaluate the impact of the process on reaching the established guidelines. Unilever's KPIs reflected the company's goal of becoming more sustainable, efficient and increasing their profit. In 5 years, they decreased by 20% the CO2 emission from the transportation, improved

service quality from 97,5% to 98,8% and reduced transport costs by around 91 million euros.

**Research limitations** – There were time restrictions and lack of access to centralization approaches of other companies that could have permitted the refinement of the framework developed.

**Practical implications** – The findings of this study show that a global and expanding company can benefit from a centralization approach when dealing with lack of control and transparency over supply chain costs and absence of standardization. The findings also indicate that centralization of SCM improves transport efficiency, reduces inefficiencies in the network and with purchasing and provides economies of scale.

**Keywords** Supply chain, Centralization, Supply chain management, Performance, Organizational structure

**Paper type** Case study

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## **List of Abbreviations**

**4PL** – Fourth Party Logistics

**CCFOT** – Customer Case Filled On Time

**CEE** – Central and Eastern Europe

**DACH** – Germany (D), Austria (A) and Switzerland (CH)

**DC** – Distribution Centre

**FMCG** – Fast Moving Consumer Goods

**GSCM** – Green Supply Chain Management

**HPC** – Home and Personal Care

**iGSCM** – Integrated Green Supply Chain Management

**KPI** – Key Performance Indicators

**MSO** – Marketing and Sales Organization

**PT** – Primary Transport

**SC** – Supply Chain

**SCM** – Supply Chain Management

**SSCM** – Sustainable Supply Chain Management

**ST** – Secondary Transport

**SU** – Sourcing Unit

**USCC** – Unilever Supply Chain Company

**USLP** – Unilever Supply Living Plan

**UTMS** – Unilever Transport Management System

## 1. Introduction

Supply chain management has been gaining attention both as a research topic and, in the industry, as a strategy for optimising logistic processes, reduce costs and positively influence the company performance (Dreyer *et al.*, 2009; Li *et al.*, 2006). The focus changes from the single operations of one plant or distribution centre to the complete supply grid, expanding the perspective while seeking more coordination and transparency for better decision making (Strandhagen *et al.*, 2006) and more consistency throughout the network (Dreyer *et al.*, 2009). Companies are becoming more and more internationalized both in terms of manufacturing and distribution, focusing on exporting to international markets (Rudberg & West, 2008). Consequently, it becomes important for managers to find new strategies for managing such an intricate network, especially with the increase in geographical dispersion (Lorentz *et al.*, 2012).

The planning of the SC centralization should occur when the organization itself has specific requisites for implementation as stated by Rudberg and Olhager (2003). Furthermore, to ensure successful implementation, managers need to recognise (and prevent) the possible problems or hurdles that may result from this implementation (Lorentz *et al.*, 2012; Pibernik & Sucky, 2007). Management of supply chain operations has been little investigated, especially when related to the management of global distribution networks and its effects on competitive advantage and financial performance (Li *et al.*, 2006). Nonetheless, Supply Chain Management is growing as an emergent field of investigation particularly since 2005 (Ashby *et al.*, 2012).

This paper aims to investigate when centralization of supply chain management is necessary for a growing global company and the effects of it on the performance efficiency and cost reduction. We develop a straightforward and flexible framework on what is required for a company to implement a supply chain management operations' centralization strategy, describing the main stages of the process and its central activities. Moreover, the framework includes steps in order to allow the identification of the most suitable method to apply it and the expected outcomes from this strategy.

The paper is grounded on the case study of Unilever's implementation of Ultralogistik, centralized management of logistic operations. Unilever is a multinational company

founded in 1930 and it is one of the three largest fast-moving consumer goods (FMCG) in the world. The organization is in over 190 countries and it has over 400 brands including Lipton, Knorr, Dove, Olá, Becel, Rexona e Ben & Jerry's (Unilever, 2016a).

Furthermore, Ultralogistik is a distinctive case for its innovative characteristics. All over Europe, Unilever has over 70 factories, each factory specialized in a different range of Unilever's portfolio. There are more than 500 suppliers, 100 distribution centers and over 40000 transport deliveries per month. This transports are managed by Ultralogistik, Unilever's Insource Transport Organization for Europe, acting as a fourth-part logistic provider (4PL) for end-to-end logistic operations (Unilever, 2012). Supply chain management centralization has not been studied in the same scale as of Unilever in the case of FMCG companies.

Since centralization is already in the implementation phase, its beginning was in 2007, this study aims to analyse the process used to centralize operations until 2016 and its effects, as to understand if the approach is bringing positive results. Moreover, it is useful for providing recommendations for the following stages of the process and to offer more understanding on the application of this approach to a company of this dimension.

To reach the objective and the following research questions are proposed:

RQ1: How to achieve the centralization of SCM operations in a FMCG company?

RQ2: Where the appropriate prerequisites to make an effective centralization of logistic management present in the Unilever Europe supply chain?

RQ3: How can the impact of the centralization of SCM operations be measured?

This report is divided in several chapters starting with the current one, the Introduction. The following section, Chapter 2, contains the literature review of the papers and case studies related to the topic in question. In this chapter the relevant definitions and logistics' terms are exposed and analysed, the main theoretical bodies of literature are presented as well as the relevant similar studies conducted on the topic. Chapter 3 focuses on the methodological aspects of the study, including the sources of information, its method of collection and the phases of investigation to be followed. The section begins with a brief analysis of the methodology utilized in similar studies.

Afterwards, Chapter 4 contains an overview of the case study, starting with a presentation of the organization and the structure of its supply chain management prior to the centralization, exposition of the motivations the company faced that led to centralization, explanation of the centralization process and timeline applied and, finally, the measurement of the case study object performance with the application of the centralization process.

To close, Chapter 5 includes a framework for centralization formulated by the author taking into account the information gathered from the literature review and the case study. The paper ends with the conclusions of the study, limitations of the same and the recommendations for further research.

## **2. Literature Review**

Centralization has been studied in many different facets, from the fundamentals necessary to implement it to the outcomes of this strategy on the performance of a company. The following literature review starts with defining the main concepts discussed in this paper, FMCG sector and Supply Chain Management. This section further focuses on the areas of centralization previously studied by other authors and relevant to the study.

### **2.1. FMCG Definition and Characterization**

Fast Moving Consumer Goods (FMCG) represent non-durable products that leave production lines as fast as they leave supermarket shelves, in other words, goods that have a low shelf life and home stock levels due to the frequency of purchase by consumers. These products are sold in high volumes and at an affordable price by guaranteeing low margins which leads to a price close to the cost of production (Majumdar, 2007). These goods are usually bought at supermarkets and are considered convenience goods, such as toiletries, drinks and grocery items, etc.

Considered as convenience or impulse goods, purchased on a daily basis or on the spur of the moment or when a need arises, without any effort, involvement or planning from the consumers (Brierley, 1995; Majumdar, 2007). They tend to represent a great part of the budget of consumers and thanks to the wide variety and choice it's a very competitive market (Celen *et al.*, 2005). In this sector transport costs are of great importance especially since the type of transport is usually by road (Rodrigues & Potter, 2013). Hofman *et al.* (2011) consider the FMCG sector the leader in supply chain management practices.

## 2.2. Supply Chain Management Defined

Supply Chain earlier definition expresses it as the network of entities involved in the different procedures and activities that deliver value in the form of goods and services distributed to the final consumer (Christopher, 1992). Supply Chain can be managed towards market responsiveness or with the intent of physical efficiency depending on the category of the product distributed, innovative or functional, respectively (Fisher, 1997).

Supply Chain Management aims to control and to forecast the manufacturing and distribution processes of the materials from suppliers to customers (Jones & Riley, 1985; New & Payne, 1995; Scott & Westbrook, 1991). Giunipero and Brand (1996) consider SCM should focus on the strengthening of dealings with suppliers while Lambert *et al.* (1998) defend that a supply chain should concentrate on the management of products flow to market. Another definition describes SCM with the goal of alignment of physical flow of the materials with the information flow throughout the process (Chandrashekar & Schary, 1999; Cooper *et al.*, 1997).

Farley (1997) emphasizes the importance of how the logistic process, equipment and know-how is utilized by the organization in order to create competitive advantage, Lee and Billington (1992) center on how those elements are coordinated inside the firm while Davis (1993) considers a broader outlook on the process, from supplier to production, distribution and delivery to end users.

Another definition of SCM focuses on satisfying the end customers of the network by strategically coordinating all the process of the supply chain (Cohen & Roussel, 2005; Green *et al.*, 2006; Green *et al.*, 2008; Ho *et al.*, 2002). More recently SCM has been guided by the trend towards building relationships of partnership or collaboration between both ends of the spectrum, suppliers and end customers (Balakrishnan *et al.*, 2004).

In one hand, Varma *et al.* (2006) defend that supply chains have become more and more intricate thanks to the new economic tendencies and globalization. Furthermore, the global market competition focus is changing towards the supply chain level of the organization (Goold & Campbell, 1987; Soler *et al.*, 2010).

Fawcett *et al.* (2008) defend that SCM should develop with the objective of increasing the company's profits and minimize risks while aiming for economic sustainability and efficiency of the supply chain. Ashby *et al.* (2012) highlight the ever growing expectations from stakeholders and consumers likewise to take into consideration the ethical behavior and the environmental impact when managing the business operations especially at the supply chain level. In this sense, SCM has gained relevance thanks to the growing prominence of the supply chain as a competitive advantage in the industry and the importance of the company's responsible conduct in all stages of the supply chain process.

### **2.2.1 New Trends in Supply Chain Management**

Ashby *et al.* (2012) support that the two concepts that connect sustainability and environmental concern with SCM are green supply chain management (GSCM) and sustainable supply chain management (SSCM).

In the last few decades, demand for the availability of more sustainable products and services is increasing amongst customers and as such, many organizations are adopting management practices that are more environmentally sustainable, green supply chain management practices. This is further influenced by the governmental passing of more strict environmental regulations (Green *et al.*, 1998; Murray, 2000).

GSCM practices can go from reverse logistics to green purchasing or integrated supply chain, focusing on the complete chain from customer to supplier (Zhu & Sarkis, 2004; Zhu *et al.*, 2008). For example, reverse logistics can go from recycling, shredding used goods and utilizing them as raw materials in the production of new ones, to sending to suppliers returned goods to be used again in manufacturing (Van Hoek, 1999).

On the other hand, there is integrated green supply chain management (iGSCM) which focus both on the external initiatives conducted with suppliers and customers and internal environmental practices applied inside the organization (Rao & Holt, 2005; Vachon & Klassen, 2006, 2008; Van Hoek, 1999).

Linton *et al.* (2007) and Preuss (2002) studies both defend that the supply chain has become the main focus of the environmental practices, changing from the organization level to the operational level. Although it is believed that economic competitiveness and a greener supply chain cannot be allied (Kleindorfer *et al.*, 2005), some offset can come from the implementation of environmental practices like waste management or reverse logistics (Srivastava, 2007) by raising efficiency and leading to competitive advantages especially in innovation (Porter & van der Linde, 1995; Van Hoek, 1999). Furthermore, organizations can benefited from being the first to go green and to implement more sustainable SCM practices (Barratt & Oke, 2007; Handfield *et al.*, 1997; Sen, 2009).

To conclude, thanks to the increasing globalization of organizations and respective supply chains, organizations should be more concerned with their ecological footprint and sustainability (Van Hoek, 1999) and apply strategies to their supply chains to create a positive impact.

### **2.3. Defining Centralization**

FMCG sector, likewise popularly named consumer packaged goods sector, is characterised by products for daily use with a short shelf life due to high customer demand and rapid deterioration, high volumes and low-cost production with high return (Oraman *et al.*, 2011).

The concept of *centralization* is employed frequently throughout literature. Kim (2007) explores how centralization can help define the organizational structure of the company. Centralization is also seen as the concentration of the supply chain planning activities in one separated and formalised department, specific for the management of the operations (Droge *et al.*, 1989), the degree of which would depend on how congregated the functional area is inside the organization.

Centralization can also be seen from another perspective as the consolidation of decision-making, depending on the hierarchical relationship between organizational planning and functional supply chain departments (Jonsson & Mattsson, 2009). In other words, the degree to which the authority to make supply chain planning decisions is consolidated



inside the organizational structure (Iyer *et al.*, 2004), in which maximum centralization decisions are mostly given at the level of senior management (Andersen, 2002).

### 2.3.1. Centralization of Supply Chain Management

According to literature, a FMCG organization focused on functional products tends to benefit from a supply chain that is physically efficient to enable low-cost production (Fisher, 1997) with a high level of vertical integration, which can be eased by a centralized management method (De Meyer & Vereecke, 1994; Hayes & Schmenner, 1978; Rudberg, 2004). This method may also benefit from the possession of warehouses, manufacturing and retailers, partial or full (APICS, 2011).

For better management of the supply chain it should be assigned to a single entity a (Pibernik & Sucky, 2007) resilient and dominating one (Rice & Hoppe, 2001), with the authority and know-how (Pibernik & Sucky, 2006). Rudberg and Olhager (2003)'s study suggested alike that centralization should only occur when the company has all the prerequisites needed to implement it and planning should concentrate in the perspective of one single-organization with multi-sites. In Table I below presents the pre-requisites necessary for successfully implementing a centralization strategy.

<b>Requirements for centralization</b>	<b>Author(s)</b>
Functional products require an efficient distribution network	(Fisher, 1997)
Supply chain vertically integrated	(De Meyer & Vereecke, 1994; Hayes & Schmenner, 1978; Marcotte <i>et al.</i> , 2008; Rice & Hoppe, 2001)
Dominating organization	(Rice & Hoppe, 2001; Rudberg & Olhager, 2003)
Competence and power to enforce the application	(Pibernik & Sucky, 2006)
Significance of corporate employees	(Marcotte <i>et al.</i> , 2008)
All planning information necessary retained in one domain	(Pibernik & Sucky, 2007)

**Table I - Requirements Necessary for Centralized Supply Chain Planning**

Source: Author

According to the studies in the literature, centralization leads to mixed results depending on the type of organization it was implemented in. If the prerequisites are taken into account, the effects of the implementation will be mostly positive (Jonsson *et al.*, 2013). Rudberg and Olhager (2003) study suggests alike that centralization should only occur when the company has all the prerequisites needed to implement it.

The aftermath from centralization can include higher degree of control and harmonization of activities (Galunic & Eisenhardt, 1994; Goold & Campbell, 1987), which can lead to more overall standardisation (Bendoly & Jacobs, 2004) and supports goal alignment while coordinating cross-functions within the company (Bowersox & Daugherty, 1995; Galunic & Eisenhardt, 1994), achieving cost control at its maximum. Although added control is established, local adaptations becomes more difficult and response times turn out to be longer, decision making comes exclusively from one unit (Burns & Stalker, 1961).

Other studies also support this argument, revealing better performance in cost-focused networks (Bartlett & Ghoshal, 1998; Dreyer *et al.*, 2009; DuBois *et al.*, 1993; Fiala, 2005; Marcotte *et al.*, 2008; Pibernik & Sucky, 2007; Rudberg, 2004; Rudberg & Thulin, 2009; Snow *et al.*, 1993) and providing economies of scale by creating synergies and reducing operational and purchasing inefficiencies (Hausman *et al.*, 2002).

Rudberg and Olhager (2003, p. 10), when analysing the relation between supply chain and manufacturing network from an operations strategy point of view, discovered that “facility issues are closely related to the manufacturing network theory and the configuration of networks, whereas vertical integration policy areas correspond to supply chain theory and the coordination issues of the network”, recommending a manner to assimilate the two areas of research.

In a supply chain of large dimension, technology and knowledge diffusion can be eased by centralization (Bartlett & Ghoshal, 1998; Flaherty, 1996; Rudberg & West, 2008), enabling likewise the overall skillset of the employees, bring a higher level of specialization to the organization (Robbins, 1990). However, it can also hinder intra-organizational sharing of knowledge (Tsai, 2002), as the information climbs up or down the hierarchy, it can be distorted (Teece, 2000). Table II synthetizes the consequences that may arise when a centralization strategy is implemented.

<b>Effects of centralization</b>	<b>Author(s)</b>
Better alignment with the overall supply chain objectives	(Bowersox & Daugherty, 1995; Galunic & Eisenhardt, 1994; Jonsson <i>et al.</i> , 2013; Lambert <i>et al.</i> , 1998; Marcotte <i>et al.</i> , 2008)
Improved supply chain efficacy	(Fiala, 2005; Fisher, 1997)
Lower network cost	(Bartlett & Ghoshal, 1998; Dreyer <i>et al.</i> , 2009; DuBois <i>et al.</i> , 1993; Fiala, 2005; Marcotte <i>et al.</i> , 2008; Pibernik & Sucky, 2007; Rudberg, 2004; Rudberg & Thulin, 2009; Snow <i>et al.</i> , 1993)
Increased delivery performance	(Fisher, 1997; Rudberg & Thulin, 2009; Snow <i>et al.</i> , 1993)
More transparent patterns and better forecast precision	(Dreyer <i>et al.</i> , 2009; Rudberg & Thulin, 2009)
Increases innovation in supply chain information technology systems	(Droge <i>et al.</i> , 1989)
Higher degree purchasing competence	(Hausman <i>et al.</i> , 2002)
Higher specialization	(Robbins, 1990)
Lower degree of knowledge sharing inside the organization	(Teece, 2000; Tsai, 2002)
Lack of adaptability	(Burns & Stalker, 1961)
Better control and coordination	(Galunic & Eisenhardt, 1994; Goold & Campbell, 1987)

**Table II - Effects of Centralization on Operational Performance**

Source: Author

## 2.3 Similar Studies

We ascertain that there is an absence of literature investigating the centralization of supply chain management. The following four studies are the most relevant literature regarding the theme in question. The Table III synthesizes the aim of each of these studies and main conclusions reached.

Author(s)	Aim of the study	Main conclusions
(Jonsson <i>et al.</i> , 2013)	<ul style="list-style-type: none"> <li>• Find the requisites and consequences of centralized logistic planning at IKEA</li> <li>• Discover how to constitute a centralize strategy</li> </ul>	<ul style="list-style-type: none"> <li>• Centralized logistic planning is required for a growing global SC in a large dimension firm, pushing for low-cost manufacture and efficiency</li> </ul>
(Kim, 2007)	<ul style="list-style-type: none"> <li>• Establish organizational features and propose the best organization structures for effective and efficient SCM operations</li> </ul>	<ul style="list-style-type: none"> <li>• Coordination and control by centralized and formalized SCM department are essential for efficient internal SC management though extreme formalization and centralization of SCM department may interfere with SC assimilation with outside parties</li> </ul>
(Dreyer <i>et al.</i> , 2009)	<ul style="list-style-type: none"> <li>• Developing a global control framework model that allows for performance measurement and distribution of roles and tasks</li> </ul>	<ul style="list-style-type: none"> <li>• The focal challenges for implementation comprise information handling and technology systems, control problems and organisational resistance to change</li> </ul>
(Li <i>et al.</i> , 2006)	<ul style="list-style-type: none"> <li>• Detect key dimensions of SCM practices and the association between them, competitive advantage, and performance</li> </ul>	<ul style="list-style-type: none"> <li>• In terms of SCM practices, higher levels can contribute to improve competitive advantage and enhance organizational performance</li> </ul>

**Table III - Summary of Relevant Studies**

Source: Author

The concept of SCM has been gaining interest from academicians and managers (Dreyer *et al.*, 2009; Li *et al.*, 2006), distinguishing SCM as a strategy for optimising logistic processes and reducing costs (Dreyer *et al.*, 2009) or as an approach for to gain competitive advantage (Li *et al.*, 2006). Furthermore, SCM should create more discernible or transparent demand patterns and to improve the accuracy of forecasting and allowing more consistency throughout the network (Dreyer *et al.*, 2009). Moreover,

Kim (2007) stated that besides taking into account the centralization property of the organizational structure, it is important to also consider formalization and hierarchy.

Dreyer *et al.* (2009) and Jonsson *et al.* (2013) conducted case studies alike. The former focusing on developing a global control framework model that allow for performance measurement and distribution of roles and tasks and the latter explored the requirements necessary for the successful implementation. Surveys were likewise conducted on the matter of centralization of SCM. The research steered by Li *et al.* (2006) provide managers of supply chain planning with the proper instrument for evaluating their existing SCM practices. Kim (2007) focused on identifying the different varieties of SCM structures and determines how they can affect the performance of an organization at the operational level.

Furthermore, Kim (2007)'s study evidenciates that centralization should only be applied to an efficient supply chain management aiming towards better performance and creating synergies while minimizing conflicts. Moreover, Kim (2007) defends that for performance improvement of the SCM, the functional organizational structure tends to be the most appropriate. This entails a department dedicated solely to SCM with high degree of centralization, medium formalization and equal hierarchical position to other departments.

Other studies similarly endorse this argument, supporting that centralization of SCM leads to better performance in cost-focused networks (Dreyer *et al.*, 2009). According to a different study, a global supply chain of large dimension who is trying to expand, could benefit from centralization of the logistic operations management, leading to better efficiency and low-cost production (Jonsson *et al.*, 2013). Dreyer *et al.* (2009) point towards expanding the attention from inner processes in a single site to operations in a multi-site supply chain while Jonsson *et al.* (2013) highlight the importance to centralization of vertical integration of the responsible entity.

Jonsson *et al.* (2013, p. 12) likewise investigated what can prevent or injure the implementation of this approach, the outcome was that most problems that arose were related to "human and organizational issues and software and data issues". Dreyer *et al.* (2009) convey more information for the management and planning of manufacturing,

providing also insights into what needs to be solved concerning the complexity problems in the network. Furthermore, it delivers the specific depiction of main components of the concept and the difficulties for the accomplishment of the same, thus bringing more knowledge into improvement requirements and resource needs.

In this chapter it was analysed the literature regarding the design of supply chain networks, their centralization, the characteristics required for the implementation of the approach and the future possible consequences from the approach. The design of global production and distribution networks is a research area that has been gaining interest but most of the existing literature does not focus on centralization and its influence on the future results of the company. Centralization of logistic operations management has not been studied in detail in the case of FMCG companies.

### 3. Methodological Considerations

In this section it is presented and detailed the methodology applied to the case study in analysis. Before the exposition, a review of the methodological aspects of relevant and similar studies, describing the type of study, the sources of information and the analysis conducted is made. Finally, the section is completed with the description of the steps followed in the methodology of the case study.

#### 3.1 Methodological Aspects of Similar Studies

There is a lack of investigation in the range of supply chain management process especially when applied by FMCG companies as previously mentioned. This clarifies why only four studies regarding the subject are shown in this section. The type of study, methodology and sources of information for these four studies are showed in the Table IV below.

Authors	Type of study	Sample/Source	Method of Collection	Measurement/ Analysis
(Jonsson <i>et al.</i> , 2013)	Single Case Study	<ul style="list-style-type: none"> <li>• IKEA's official statistics of 2010</li> <li>• Employees of the organization</li> <li>• Literature review</li> </ul>	<ul style="list-style-type: none"> <li>• Observations</li> <li>• Internal documents and presentations</li> <li>• Project manager interviews</li> <li>• Demand and supply planner interviews</li> </ul>	<ul style="list-style-type: none"> <li>• IKEA internal operational measures</li> <li>• Delivery performance and forecast accuracy in 2001 and 2011</li> </ul>
(Kim, 2007)	Survey	<ul style="list-style-type: none"> <li>• Supply chain managers of SCM department</li> <li>• 1490 questionnaires</li> </ul>	<ul style="list-style-type: none"> <li>• Individual visit</li> <li>• Fax</li> <li>• Mail</li> </ul>	<ul style="list-style-type: none"> <li>• Factor analysis</li> <li>• Cluster analysis</li> <li>• ANOVA analysis</li> </ul>
(Dreyer <i>et al.</i> , 2009)	Single Case Study	<ul style="list-style-type: none"> <li>• Literature review</li> <li>• Research projects at SINTEF</li> <li>• Employees of Mustad</li> </ul>	<ul style="list-style-type: none"> <li>• Internal documents and presentations</li> <li>• Observations</li> <li>• Action research methodology</li> </ul>	<ul style="list-style-type: none"> <li>• Framework applied to the case study, Mustad supplying company</li> </ul>
(Li <i>et al.</i> , 2006)	Survey	<ul style="list-style-type: none"> <li>• 2 Mailing lists: Society of Manufacturing Engineers and the Council of Logistics Management conference</li> <li>• 3137 target respondents, 6,3% response rate</li> <li>• 20% - CEO/President, 50% - Managers</li> </ul>	<ul style="list-style-type: none"> <li>• Mail with a cover letter explaining the purpose</li> <li>• Online survey</li> </ul>	<ul style="list-style-type: none"> <li>• Structural equation modelling analysis using LISREL</li> </ul>

**Table IV - Relevant Studies: Methodological Aspects**

Source: Author

Two of the studies focused on single case study analysis while the rest used surveys to multiple companies as the methodological analysis. All of the studies analyzed have several sources of information and, more specifically, the two case studies both take the single-case study approach and have some similarities regarding the methods utilized for data collection.

### 3.2. Selection of Methodology

In order to assure the reliability of a study, it is important to select the most appropriate research methodology to apply in each study. The following three conditions are set up by Yin (2009) for deciding the most appropriate methodology to follow: the type of research question guiding the investigation, the control of the investigator on the behavioural events and the focus of the study in contemporary events.

- The primary question this study intends to answer is of the explanatory type *How to achieve the centralization of SC operations in a FMCG company?*;
- The researcher will not have any influence over the behavioural events;
- The focus is on Unilever's recent centralization of supply chain management operations in Europe and as such a contemporary event.

Taking into account the elements above, the case study is the preferred strategy for examination. Furthermore, direct observation and interviews are two of the sources of evidence utilized in this study, techniques cases studies normally rely on (Yin, 2009).

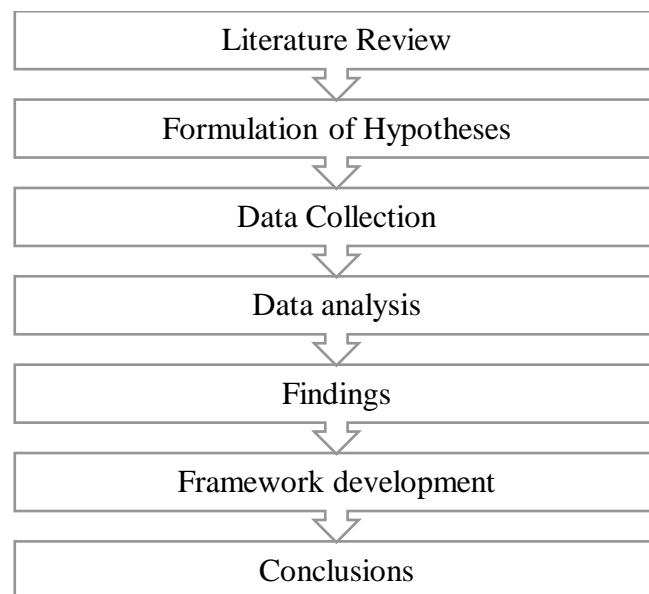
According to Yin (2009), case studies can have a single or multiple case approach. The single-case study is suitable when it signifies the *critical* case to analyse a well-framed theory, when it is a *unique* case, the *representative* case or the *revelatory* case. This case study is of the revelatory kind, since the researcher was giving the opportunity to have access to information and employees of the company and to analyse internal documents not otherwise commonly available to other investigators. Furthermore it is also unique in the sense that the object of the case study, Unilever's supply chain, has distinctive characteristics and the centralized concept was recently implemented.



To sum up, the chosen methodology used in this case, is aligned with the definition of case study. This type of study allows for the investigation, understanding and characterization of a phenomenon in a practical context (Eisenhardt, 1989). The aim of this study is to analyse the centralization process applied to the transport network management of Unilever Europe and to propose a framework for the application of centralization in organizations of the FMCG sector.

### 3.3. Phases of the Study

The investigation process is divided into 7 phases ordered chronologically and shown beneath in Figure 1. The following figure represents the “logical sequence that connects the empirical data to a study's initial research questions and, ultimately, to its conclusions” described by Yin (2009, p. 26) as the first step necessary to properly structure the study.



**Figure 1- The Phases of the Study**  
source: Author, based on Yin (2009)

As the first step in the investigation, it is essential to analyse extensively the existing literature on the subject of centralization of supply chain management and other related topics, such as, centralization of services, the impact of supply chain management structure on the company's performance. The literature review will provide a better

insight on the prerequisites necessary for implementation of this strategy, obstacles that may present themselves and injure the project's success and the consequences to the organization down the line.

Following the literature review, it is necessary to formulate the research hypotheses that guide the study. Thirdly, it is necessary to describe Unilever's supply chain operation before the beginning of the project and its characteristics. Multiple sources of information with the aim of triangulation should be utilized as to lead to the convergence of information and to guarantee the provision of reliable evidence (Yin, 2009). This study addressed internal and external sources of information. In the Table V below it is possible to find the mentioned sources.

<b>Source origin</b>	<b>Type of Source</b>	<b>Source of information</b>
Internal to the case study	• Semi-structured interviews	<ul style="list-style-type: none"> <li>• Technology &amp; Innovation Logistic manager</li> <li>• Logistics Procurement Director for Russia, Middle East and Africa</li> </ul>
	• Documents	<ul style="list-style-type: none"> <li>• Management reports regarding performance</li> <li>• Reports on the project</li> <li>• PowerPoint presentations about the Unilever planning concept</li> <li>• Framework regarding the implementation strategy applied</li> </ul>
	• Direct Observation	<ul style="list-style-type: none"> <li>• On-site period</li> <li>• Personal field notes</li> </ul>
External to the case study	• Websites	<ul style="list-style-type: none"> <li>• Informational and institutional websites</li> </ul>
	• Documents	<ul style="list-style-type: none"> <li>• Papers and articles</li> </ul>

**Table V – Sources of the Study**

Source: Author

Taking into account that most of the research was conducted during the on-site period at the company, from October 2015 until March 2016, multiple internal sources to the case study were addressed. Data was collected and analyzed from personal field notes, observations, intel provided by employees involved in the project throughout the years, semi-structured interviews with employees and company records related to the subject

including reports and presentations. Regarding the external sources, the focus was mainly on informational websites and papers relevant to the subject in question.

The next step was to analyze the information gathered from the various sources. Firstly, we analyzed the documentation of the company that was collected, with the aim of knowing how the supply chain centralization process was applied to the company, reports on the project since its beginning and presentations about the Unilever planning concept were analyzed.

Following, semi-structured interviews were conducted with relevant employees of the organization that participated in the project of centralization since its beginning with the purpose of understanding the operational and managerial points of view in that process and the reasoning behind the choices made before and during the implementation. Finally, the development of a framework for implementing the centralization process was conducted by triangulating the different sources of information both external and internal to the case study as to increase the viability of the end result.

## **4. Case Study Analysis**

The case study in analysis is Unilever's centralization of logistic management operations in Europe, a project named Ultralogistik and currently located in the Katowice Hub of the company, in Poland. Below we will present the most important notes regarding the case study analysis focusing on the two interviews (see fragments and script of the interview on Appendix 3) and intel gathered from the company, presentations and personal field notes.

Two interviews were conducted to employees of the company in analysis, Unilever. One interviewer from the operational team involved in the project in the Katowice Hub and another interviewer from the management team responsible for decision making and evolution of the project in the Schaffhausen Supply Chain Leadership Hub. The intent was to obtain more information regarding Unilever's centralization, the steps taken to reach it and the factors behind the decision to implement the strategy. The goal was to understand Unilever's centralization process and how it can contribute to the centralization framework proposed.

### **4.1. Case Study Object Description - Unilever**

Unilever is a worldwide corporation with headquarters in Rotterdam, Netherlands, and London, United Kingdom. It was founded in 1930 and it is one of the three largest fast-moving consumer goods in the world. Following its vision to "make sustainable living commonplace", the organization reached a turnover of €53.3 billion in 2015, a growth of 10 per cent from the previous year, with more than 172,000 employees throughout the world. The company is present in over 190 countries and has more than 400 brands worldwide, 13 of which with sales above €1 billion a year. In terms of sales, Europe represents 26 per cent, Asia and Africa account for 42 per cent followed by the Americas with 32 per cent (Unilever, 2015b).

Unilever has one focal purpose for long-term strategic growth of the business, to make sustainable living commonplace through the Unilever Sustainable Living Plan (USLP) launched in 2010. Their vision for 2020 is of:

- Accelerating growth with the intent to double their business;
- Reducing their environmental footprint by half in the production and disposal of their products;
- Increasing their positive social impact by helping people improve their livelihood by focusing on their health and well-being through nutrition and hygiene programs.

Their goal is to adapt to the evolving consumer trends and expectations to be more reliable, earn more trust from consumers and become more profitable and competitive (Unilever, 2016b, 2016c, 2016d).

The strategy put in place by Unilever is in line with the market trends, focusing on providing more sustainable products and adapting their SCM practices to an environmentally sustainable approach (Green *et al.*, 1998; Murray, 2000), following the market tendency of directing environmental practices focus to the supply chain (Linton *et al.*, 2007; Preuss, 2002). On account of Unilever's increasing globalization, the organization is concern with long-term growth, aiming for reducing their ecological footprint and becoming more sustainable as endorsed by Van Hoek (1999) through the implementation of GSCM practices.

#### **4.2. Unilever's Supply Chain Characteristics**

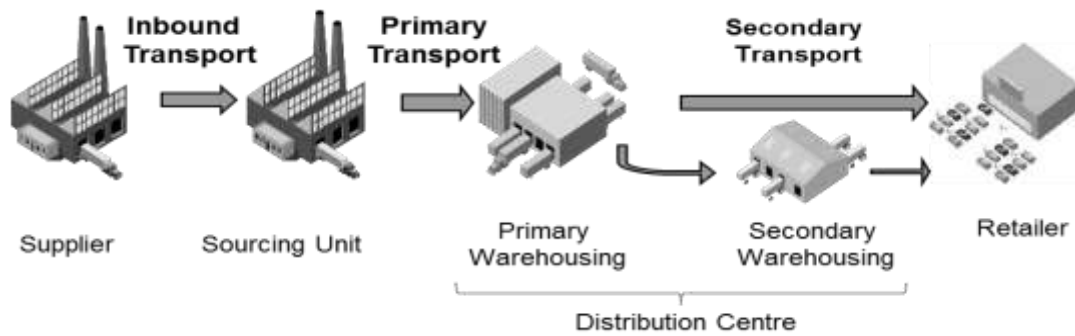
All over Europe, Unilever has over 70 plants, each site specializes in producing for a different range of Unilever's portfolio – Food, Refreshment, Home Care and Personal Care products. These product categories are represented in Figure 2 (next page) by the brands with the highest turnover (Unilever, 2016c).

<b>Food</b> <ul style="list-style-type: none"> <li>• Dressings</li> <li>• Sauces</li> <li>• Oils &amp; Spreads</li> </ul>	
<b>Refreshment</b> <ul style="list-style-type: none"> <li>• Ice Cream</li> <li>• Beverages</li> </ul>	
<b>Home Care</b> <ul style="list-style-type: none"> <li>• Laundry Detergents</li> <li>• Laundry Conditioners</li> <li>• Household Cleaners</li> </ul>	
<b>Personal Care</b> <ul style="list-style-type: none"> <li>• Hair and Body Care Products</li> <li>• Deodorants/Antiperspirant</li> <li>• Grooming Products</li> </ul>	

**Figure 2 - Product Categories of Unilever**

Source: Author, based on (Unilever, 2016c)

The Unilever transportation network is divided in 3 types of transport. The factories (Sourcing Units - SU) receive raw and packing materials from more than 500 suppliers. The transport between supplier and SU is referred as Inbound Transport. Once production is complete, the products are sent to one of over 100 Distribution Centers (DC) in each European country. The transport between SU and DC is referred as Primary Transport. From here, trade customers like Carrefour and Tesco, receive the products they bought. This is Secondary transport, from DC to the retailer. There are more than 40 000 transport deliveries per month (Unilever, 2012). Figure 3 represents the transportation network described above.



**Figure 3 – Unilever Transportation Model**

(source: Author, based on internal documents)

The following are the factors that allowed Unilever to implement a successful centralized approach to supply chain management. The organization's strategic goal until 2020 is to double the global business and reduce the environmental footprint by half and a high speed of growth is a contributing factor to centralization (Unilever, 2015a). As such, the organization is a cost focused network trying to create synergies and grow (Kim, 2007). In addition, Unilever owns the majority of locations in the supply chain when related to its sourcing units and distribution centres, logistically it is vertically integrated to some extent (based on IKEA internal operational documents) giving the company more control over the network (APICS, 2011; Rudberg, 2004). Since Unilever is a FMCG company, its products are for daily use and as such functional (Fisher, 1997).

#### **4.3. Overview of the Supply Chain Concept for Europe Before Centralization**

Before centralization was being considered, the supply chain transports of the organization were managed by three different parties: DHL, material suppliers and Marketing and Sales Organization (Unilever, 2014). Every country where Unilever operates has its Marketing and Sales Organization (MSO), it is the Unilever headquarter of each country whose responsibilities range from determining demand, ordering and distribution of products to sites in the specific country (Verhoeven, 2008).

DHL belongs to the German Deutsche Post DHL Group, the global leader in postal and logistics. DHL Logistics business unit, as a logistical partner, provides services in the range of freight transportation, warehousing and distribution, supply chain solutions.

Furthermore, it is the worldwide leader in market share for contract logistics and the biggest logistics expert (DHL, 2016). Transports related to Food factories, except in the Central and Eastern Europe region (CEE – Poland, Estonia, Latvia, Lithuania, Hungary, Czech Republic, Slovakia, Russia, Ukraine) who were already under the scope of Unilever, were managed by DHL as an outsourced 4PL, charging for the transport plus the service provided.

After two semi-structured interviews with a transport manager and the logistics procurement director (see Appendix 3), we depict the problems with the transport network before centralization. This model was not efficient as Unilever was not able to understand how the additional transport costs or claims (examples: express transport, demurrage, second driver, cleaning) were managed. External party did not consider reducing these costs or support as their responsibility. Home and Personal Care factories were managed locally by the own Sourcing Units or Distribution Centers and Refreshment category factories by the country's MSO and as such there were no synergies being created and no scale benefits for Unilever. Furthermore, Material Suppliers carried out transports of the orders according to DDP Incoterm (transport included in the cost of goods), as such they would charge higher rates and the providers and rates changed in each country.

Unilever specialises in the following areas of the FMCG sector: Food, Refreshments, Home and Personal Care (Figure 2, p. 21). The split transport management meant Unilever lacked transparency regarding the process since the transport providers differ from country to country and so do their rates, and lacked control and knowledge over the transport management by external parties such as DHL and suppliers. In addition, Unilever had less power of negotiation and no common practices were in place since each location was negotiating individually and some more effectively than others, as such no synergies were created.

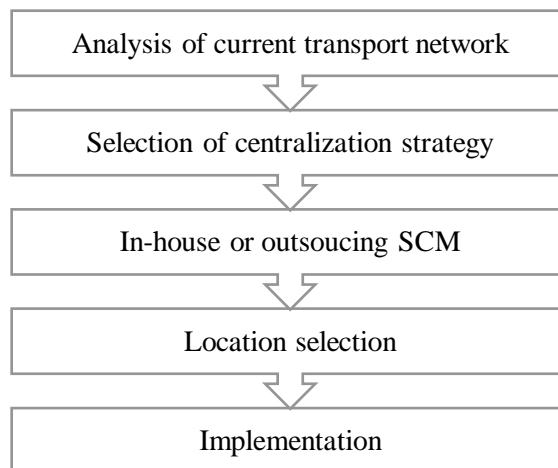
Furthermore, the transport service was low in quality, there were no Key Performance Indicators (KPIs) or standards implemented to guide service and outsourced parties were not concerned with the quality of service as long as the transport was provided. Moreover, the company was further fragmented since different software systems were being used by each party to manage transports and orders adding to the limited accessibility to



information. To sum up, Unilever was not using its power of dimension and globalization to have leverage over its counterparts.

#### 4.4. Main Findings Regarding Unilever's Centralization Process in Europe

In 2005, Unilever developed the Unilever Supply Chain Company (USCC) in Schaffhausen, Switzerland with decision making authority by gathering managers from logistics, procurement, planning and finance under one ceiling (Verhoeven, 2008). Figure 4 details the steps taken by Unilever to centralize SCM operations in Europe.



**Figure 4 - Phases of Centralization of Unilever Europe SCM**

Source: Author, based on interviews (see Appendix 3) and internal documents

Analysis of current transport network: the first step taken was analyzing the problems of the transport network to understand what changes had to be made.

Selection of centralization strategy: to gain more control over the transport network, transparency and standardization, USCC commenced a project of centralization, the Ultralogistik. The intent was to reduce costs, optimize operations and create synergies, in other words, to go from locally managed transports to one European transport model (Unilever, 2014).

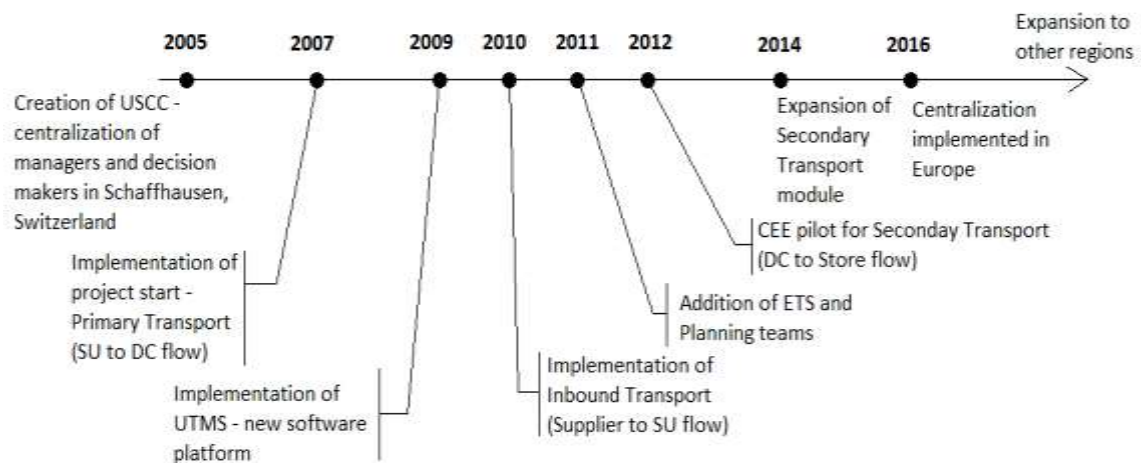
*In-house or outsourcing SCM:* next there was the decision of whether the 4PL unit responsible for the project would be in-house or outsourced management of the transports.

According to the interview with the logistics procurement director (see Appendix 3), if outsourced they would hire DHL to manage the rest of the transports since they were already responsible for the transports related to Food Factories. Also, DHL had the advantages of having the expertise and experience required. However, reaction from the serviced provided was not so good, the company was not willing to go the extra mile, not innovating or optimizing of the service. Furthermore, transport providers that had to deal with DHL as an intermediate for Unilever gave the feedback that they did not think it was not fair for DHL to work as a 4PL and to also be a part of the tender as a transport provider.

Finally, Unilever decided to handle transportation management in-house since the feedback from a pilot project in the Poland facility acting as an internal 4PL for CEE region was quite successful: relations with transport providers were great, the people were engaging and able to negotiate better rates.

*Location selection:* the succeeding step was to choose the location for the European Center for Logistic Management Transports of Unilever. Although USCC is located in Switzerland, it was not the appropriate place to locate Ultralogistik, since the country has high labor costs and not a large workforce available. The final choice came to the city of Katowice because Poland had already an established base for centralization thanks to a previous completed pilot project of centralization of Primary and Secondary Transport of CEE countries (see Appendix 3).

*Implementation:* In 2008, Ultralogistik, internal 4PL with no truck owning, was official created in the Katowice Hub, Poland. Unilever established the implementation of centralization in several stages, Figure 5 outlines those stages. The timeline and the exhibition of each stage was constructed based on the two semi-structured interviews (see Appendix 3) and internal documents and presentations on the project (Unilever, 2014, 2015c).



**Figure 5 – Stages of Implementation**

(Source: Author, based on interviews and internal documents)

**2007:** Unilever then started the project by focusing firstly on Primary Transport Outbound, working on finished goods transports starting with the implementation of German region. Primary Transports were the first focus as they are transports from Sourcing Units to Distribution Centers, both locations owned by Unilever, and as such, intra-company transports with less logistic parties involved. Starting by taking over the transports being managed by external 4PL DHL, following with the implementation of HPC factories previously managed locally by SUs and DCs. The following year, the organization focused on the Refreshment category factories previously managed by the countries' MSO.

**2009:** to further standardize the transport process and culminate in one way of working, Unilever created Unilever Transport Management System (UTMS), transport controlling software that integrates all transport and orders information.

**2010:** commenced the implementation of Inbound Transports. It took more time because there are many small suppliers in this scope. Furthermore, really small suppliers who only make transports a few times a year were not a part of the centralization since there was no added value just more complexity. Furthermore, it was created an Ocean Freight Management Team for managing ocean transport movements.

**2011:** the subsequent year, emphasis was on improving team support and transport planning by addition of new teams: Enterprise and Technology Solutions (ETS), provides Human Resources Services, Workplace Services and Finance/Business Services, it also includes all of the Technology support, and Planning, (responsible for ordering materials from suppliers to SUs) teams were added.

**2012:** the next phase was concentrated on Secondary Transport, transports of orders from Distribution Centers to Customers, taking over by Ultralogistik of the transports previously managed by the country's MSO. The pilot lasted one year and a half and focused on the CEE region, as previously done in the Primary Transport phase. In the same year, Improvement and Logistic Claims team were formed to improve service quality and reduce additional transport costs. The pilot successfully finished in 2014.

**2014:** the Secondary Transport project was expanded to the rest of the regions in Europe.

**2016:** Unilever finalized implementation of centralization in the Europe region, changing its focus to harmonization, optimization and sharing best practices from country to country.

In order to monitor performance, Unilever establish Key Performance Indicators (KPIs) for the Europe operation. These units of measurement reflect the strategic goals Unilever established for 2020 of accelerating business growth and reducing the environmental footprint.

The first KPI is related to sustainability, focusing on decreasing the environmental impact of the company and improving transport efficiency. From 2008 until 2013, Unilever decreased by 20% the CO<sub>2</sub> emission from the transportation of their products by optimizing the efficiency of their routing network and the truck capacity of their transports. The second KPI is referred to as Customer Case Fill on Time Losses (CCFOT) and it measures customer service quality from the starting point when the customer places the order until the final receipt by the customer. From 2008 until 2013 CCFOT improved from 97,5% to 98,8% in Europe. The third KPI is the measurement of cost savings of the transport network from year to year as a result of competent purchasing, reducing inefficiencies and innovative implementations. From 2008 until 2013, Unilever was able to reduce its cost of transport by around 91 million euros through the implementation of

a new software standardized platform, the use of the company's dimension to create synergies and achieve more beneficial contracts with carriers and maximising the load fill of the trucks to decrease the number of contracted trucks to a minimum (Unilever, 2014, 2015c).

<b>KPIs</b>	<b>2008 – 2013</b>
CO2 emission	- 20%
CCFOT	+ 1,3%
Cost Savings	- 91m€

**Table VI - Unilever KPIs from 2008 to 2013**

source: Author, based on (Unilever, 2014)

To sum up, as can be attested by the analysis of KPIs, the centralization process was a success. Unilever will keep centralization at a Region Operational Center level because it is close to local markets permitting face to face meetings; allows for maintaining good relations with transport providers, suppliers and customers; time zone difference is not relevant since the countries are relatively close; culturally there are more similarities inside the region, and finally, it is easier to find people who speak the local language. Due to the project's success, the centralization concept is now being applied to other regions in the world (Unilever, 2015c).

## 5. Framework for Centralization Process

Gathering information from the literature reviewed and the centralization process followed by Unilever, allowed the construction of a theoretical framework for the SCM in the FMCG industry (Figure 6). Considering the proposed framework presented we present the depiction of the activities in each phase. We took into account the lessons learned from Unilever's centralization and the literature regarding SCM and centralization, more specifically related to the pre-requisites for the implementation of a centralization approach to decision making and the expected outcomes from this strategy.

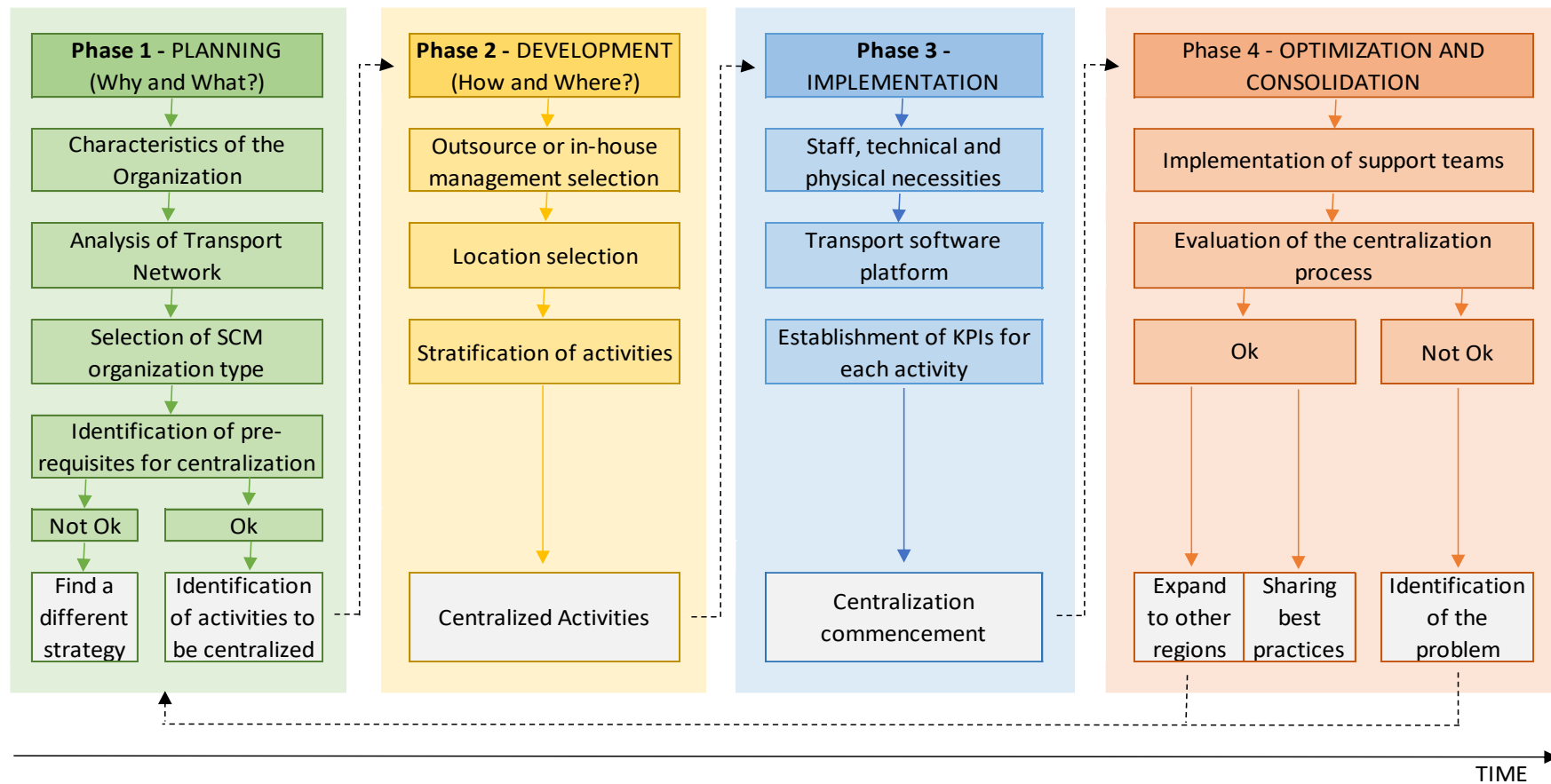
### Phase 1 – Planning

The organization is considering the implementation of a centralization strategy to SCM as to improve efficiency and reduce cost. The initial phase is characterized by an internal analysis of the company to understand if the organization and its structure are appropriated for centralization.

Characteristics of the Organization: Firm is taking into consideration the centralization of their supply chain management services. An internal examination of the characteristics of the organization in question is conducted with the aim of comprehending if the strategy is indicated for the company:

- Type of product or service provided (Fisher, 1997);
- Level of vertical integration (De Meyer & Vereecke, 1994; Hayes & Schmenner, 1978);
- Competence and authority (Pibernik & Sucky, 2006; Rice & Hoppe, 2001);
- Degree of ownership of factories, warehouses and retailers (APICS, 2011);
- Strategic objectives of the organization (Dreyer *et al.*, 2009; Jonsson *et al.*, 2013).

Analysis of transport network: After understanding the features of the company, it becomes necessary to investigate the supply chain network in place. Starting with ascertaining the complications the current situation regarding the production and



**Figure 6 - Framework for Centralization of SCM**

(source: Author, based on Figure 4 and 5)

distribution processes from supplier to end customer brings to the company and what can be improved to make the supply chain network more efficient and effective (Unilever, 2014).

*Selection of SCM organization type*: Decide on the appropriate type of SCM for resolving the problems encountered on the previous analysis regarding the position of the department in the organizational chart in relation to the other departments (Chow *et al.*, 1995; Kim, 2007):

- Selection of the degree of concentration of decision making - grouping or centralizing SCM in a separate department responsible for the functional area;
- Extent of formalization - the level of standardization of internal procedures;
- Hierarchal relationship - the extent to which the SCM department is located comparatively to other functional departments.

*Identification of pre-requisites for centralization*: verifying if the necessary pre-requisites for centralization are present taking into account the information gathered in the previous phases regarding the company's characteristics and the supply chain structure. Please note that if the pre-requisites are not present then the centralization strategy should not be implemented (Rudberg & Olhager, 2003) and, consequently, the organization should investigate other approaches to improve the supply network.

At the end of this stage the company should be aware of the problems the supply network has and if centralization is the appropriate strategy to improve the results, centralization should only be applied if added value is demonstrated.

## **Phase 2 – Development**

*Outsource or in-house management selection*: the first step should be to analyse potential 4PL companies regarding their performance (effectiveness and responsiveness), technology and service capability, customer service, cost reduction, flexibility and reputation (Govindan *et al.*, 2016; Hwang *et al.*, 2016). Next, analyse whether the organization has the necessary conditions to create an in-house department with financial,



physical and technical resources either available or with the possibility of being employed (Unilever, 2014).

Compare both options and determine the whether to outsource or to create an in-house SCM department responsible for the centralization. If outsourced make sure the outsourced company has the requirements necessary to execute the contract, the contract should be outlined expressing detailed service characteristics and requirements, responsibilities, method to monitor and evaluate the service provided.

Location selection: select a country for the physical location of SCM department or functional area cultural. Relevant factors for selection are: existence of infrastructure facilities of the company, availability of quality workforce, cultural factors of the country, the economic and political situation of the country and tax situation (Miller, 1993; Unilever, 2014).

Stratification of activities: divide the network and prioritize activities, start with the less complicated logistically before moving to the more complex activities. Establish the starting point, it should focus on the parts that only depend on internal parties, in other words, intra-company transports which have less logistic parties involved (APICS, 2011; Unilever, 2014).

At the end of this phase the organization must know where and how the implementation should occur and which activity will be the first to begin the centralization process.

### **Phase 3 – Implementation**

Collect all information and material required to execute the centralization and ensure success of the strategy applied.

Staff, technical and physical necessities: if centralization is in-house management responsibility, company must guarantee they have the staff, technical and physical requirements necessary to perform the centralization. If outsourced, company must guarantee that the outsourcing supplier has the staff, technical and physical requirements necessary to perform the contract (Zhu *et al.*, 2001). This may entail giving the supplier access to the information systems of the firm.

Transport software platform: implementation a software platform that allows for the management of all transports, orders and deliveries by all staff in the operational teams of the centralized services (Jonsson *et al.*, 2007; Jonsson *et al.*, 2013). One common tool facilitates standardization of the working method and provides easier access to all information of the supply chain.

Establishment of KPIs for each activity: establish key performance indicators (KPI) and adequate to each activity to monitor the performance throughout the process of centralization. KPIs help to institute quantitative goals and track their evolution, furthermore, it provides the staff with concrete and clear goals to be achieved (Unilever, 2014, 2015c). Please note, the KPIs should reflect the company's strategic goals for the centralization procedure as to better evaluate the impact of the process on reaching the established guidelines.

Centralization commencement: At the end of this stage company should be prepare to commence centralization of activities, moving from locally managed supply chain to one centralized supply model.

#### **Phase 4 – Optimization and Consolidation**

This is the last phase, focusing on optimizing the implemented SCM and analysing the post-centralization situation of the company.

Implementation of support teams: support teams would assist the operational team, providing human resources, workplace services, finance services and technological support (based on Unilever centralization process, see Appendix 3).

Other support activities recommend are:

- Improvement and Customer Service team - formed to improve service quality;
- Logistic Claims team - intended to reduce additional transport costs like express transport or demurrage;
- Planning - responsible for ordering materials from suppliers with the expectation of creating synergies.

Evaluation of the centralization process: at this stage it becomes necessary to evaluate the outputs of the centralization strategy, starting with analysing the KPIs of each activity to discover if the centralization process improved the company's efficiency and reduced cost. In case the centralization process was outsourced to an external 4PL, an evaluation of the service provider has to be conducted.

If the final evaluation is positive then the centralization process can be expanded to other regions or activities (Unilever, 2015c). Also important is the sharing of best practices to create one better way of working (Jonsson *et al.*, 2013). If not, company needs to identify the complications and return to the first phase in which the problem can be investigated and resolved by, for example, changing transport service provider or material supplier.

## 6. Conclusion

Unilever recognized that their old transportation network model was constituted by an uneven supply chain, assembled with lack of transparency regarding information/communication, grounded on decision making at a local level. This conditions did not contribute to the development of the company since there was no knowledge of existing inefficiencies. Furthermore, the main strategic goals of the organization accelerating growth and reducing the environmental footprint (Unilever, 2014, 2016d).

Making some adjustment was required to improve supply chain efficiency and consequently lower transportation costs in a large and globalized organization. Unilever developed a new supply chain management concept, more integrated and transparent through centralization. From a fragmented dispersed local supply chain to consolidated harmonised logistic management, more productive since divisions are working together towards common goal.

Centralization of supply chain operations has been little investigated (Li *et al.*, 2006) however, it is growing as an emergent field of investigation. Furthermore, supply chain has become the main focus of environmental practices. The increasing demand for the availability of more sustainable products and services from customers-and the growing globalization of organizations, increased the concerned with ecological footprint and sustainability (Van Hoek, 1999). Moreover, organizations can benefited from being the first to implement more sustainable SCM practices.

The goal of this study was to understand how and when the process of centralization should be applied in SCM. Centralization should only occur when the company has all the prerequisites needed to implement it (Rudberg & Olhager, 2003) and should only be applied to an efficient supply chain management aiming towards better performance in cost-focused networks and creating synergies while minimizing conflicts.

The results of this study can be used to investigate whether an organization has the needed requisites for successfully executing a centralization strategy and support in surveying the projected effects. In the case of Unilever and according to the investigation conducted for the literature review, the necessary prerequisites needed to ensure the successful implementation of centralization were present: high speed of growth, functional products,

cost focused network, ownership of majority of locations, vertically integrated to some extent.

We took into account the centralization process followed by Unilever: analysis of current transport network, selection of centralization strategy, decision to outsource SCM or to create a centralised in-house department, selection of location for the department, implementation of centralization. Next, we provided a centralization implementation framework based on both theoretical research and a case study, and that can be applied to other FMCG organizations. This revised framework includes for instance, besides the steps mentioned in the case study: an investigation to identify if the prerequisites are present, as suggested by Rudberg and Olhager (2003); the stratification of activities, starting with activities with less logistical parties involved (APICS, 2011); and the needed step of assuring that all staff, technical and physical necessities are present.

Concerning the evaluation of company performance after the implementation of the centralization strategy, it is recommended to implement KPIs to quantify goals and track their progression. KPIs should reflect the company's goals for the centralization procedure as to better evaluate the impact of the process on reaching the established guidelines. Unilever establish KPIs to quantify the evolution of their environmental impact as to reduce carbon footprint, to track savings at the operational level as to become more efficient and to measure the quality of the service from end to end to improve customer service (Unilever, 2014, 2015c).

The findings of this study show that a global and expanding company can benefit from a centralization approach when dealing with lack of control and transparency over supply chain costs and absence of standardization. The findings also indicate that centralization of SCM improves transport efficiency, reduces inefficiencies in the network and with purchasing and provides economies of scale.

As this is a single case study we must consider that outcomes and conclusions from the Unilever case study may not be illustrative of SCM centralization for all FMCG companies. So as to reinforce the consistency of the centralization design concept it should be applied to other firms and possibly even compared to other frameworks that may be developed.

There were time restrictions and lack of access to centralization approaches of other companies that could have permitted the refinement of the framework provided. Further investigation is required to perfect the framework for application of a centralization approach to a supply chain and to fully understand the implementation process, and the relationships between all variables multiple case-based studies.

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## **Appendixes**

### **Appendix 1. Interview Script**

#### Interviewees' identification

1. What is your background in the company?
2. What was your involvement in the beginning of the project?
3. What is your current involvement in the project?

#### Stage 1 - Planning

1. What was the transport structure of Unilever before the implementation of Ultralogistik?
2. Who was responsible for the decision of centralizing logistic management?
3. What were the reasons for considering centralization?

#### Stage 2 - Developement

4. Which factors influenced the company to choose in-house transport management instead of outsourcing to a 4PL third party like DHL?
5. What were the factors that determined the selection of the Katowice Hub as the location for Ultralogistik?
6. Who was responsible for the final decision regarding outsourcing or not and location?

#### Stage 3 - Implementation

7. What kind of information is taken into account when deciding the phases of implementation?
8. What were the phases of implementation of the Project?

#### Stage 4 – Optimization and consolidation

9. By which means does the company monitors the evolution of the project?
10. What are the KPI's to evaluate the implementation of centralization?

11. Is an overall evaluation of the centralization process conducted to understand if the established goals have been reached?
12. In your opinion, what is in stored for Katowice Hub in the future?
13. Has the centralization strategy been considered for the transport networks in other continents?
14. Is centralization on a global scale a possibility for Unilever?

## **Appendix 2. Interviewees' identification**

### Interviewee 1: Sylwia Slowik (Transport Manager)

*What is your background in the company?*

Started in Unilever back in 2000 as a member of the Transportation, Warehousing and Customs team in Unilever Katowice Factory. Warehousing was responsible for the cooperation with the 2 warehouses in Katowice. Since Poland was not a part of European Union or Schengen area, customs team was responsible for the logistic part of transports entering and exiting Poland. Transportation scope was small, including International and National transports.

*What was your involvement in the beginning of the project?*

Was a part of the team responsible for the centralization of CEE countries at the time of the official creation of Ultralogistik.

*What is your current involvement in the project?*

Currently, is the Technology &Innovation Logistic manager of Process and System team in Katowice Hub.



Interviewee 2: John Matthias (Logistics Procurement Director)

*What is your background in the company?*

Started as International Intern in UK for 3 months. Before being involved in the project was working in the implementation of the SAP system in one of Unilever's factories in Europe.

*What was your involvement in the beginning of the project?*

In 2008, moved to Switzerland to work in the logistic team responsible for the centralization as a transport manager for DACH & Nordics region (Everest II).

*What is your current involvement in the project?*

Since middle of 2010, has been working as the Katowice Hub and Logistics Director and in the March of 2016, was appointed the Logistics Procurement Director for Russia, Middle East and Africa.

### Appendix 3. Fragments from Case Study Interviews

TRANSPORT MANAGER	LOGISTICS PROCUREMENT DIRECTOR
<i>What was the transport structure of Unilever before the implementation of Ultralogistik?</i>	
<p>The transports were managed in three different ways: food factories transports were outsourced to DHL as an external 4PL, Home and Personal Care transports were managed locally either by the Sourcing Units and Distribution Centers or the country's headquarters, finally, transports to Sourcing Units were also managed by the suppliers, the transport was included in the cost of goods (DDP incoterm).</p>	
<i>What were the reasons for considering centralization?</i>	
<p>DHL was acting an external 4PL, charging for the transport plus the service provided, however, it was not able to manage the high additional costs such as express deliveries and demurrage since they did not considered it their responsibility. Some transports were managed by suppliers and the rest by the local responsible parties (MSO) which meant different providers and rates in each country. Since transports were managed by several different parties that resulted in lack of transparency, less power of negotiation, no synergies, no economies of scale, high level of costs (400 M euros) and low level of service quality. Moreover, several different software systems were being used and no KPIs were implemented. Unilever was not using its power of dimension and globalization to get leverage and better rates.</p>	
<i>Which factors influenced the company to choose in-house transport management instead of outsourcing to a 4PL third party like DHL?</i>	
	<p>If outsourced they would hire an external 4PL like DHL to manage the transports since part of them were already managed by DHL. DHL has the expertise and experience required for the job, however, Unilever received feedback from employees working in collaboration with DHL regarding the quality of the service provided, the response was that the company was not whiling to go the extra mile, not concerned with extra transport costs (claims: demurrage loading/unloading, express, second driver, weekend, rental), not reactive to situations that occurred and not innovating or optimizing the service. Furthermore, transport providers that had to deal with DHL as an intermediate for Unilever gave the feedback</p>

	<p>that they did not think it was not fair for the 4PL to also be a part of the transport tender.</p> <p>In addition, feedback from the Poland facility acting as 4PL for CEE region was extremely good, relations with transport providers were great and the employees were engaging and able to get better rates.</p>
<i>What were the factors that determined the selection of the location for Ultralogistik?</i>	
	<p>USCC was already located in Switzerland but it was not a good location since the country has high labor costs, not many people available to hire and not enough space. CEE region is the most cost accessible and Budapest or Katowice were the first options in consideration. Poland was the chosen location since it is a politically stable country, with economic growth each year with good level of education and language of the labor force. Furthermore, there was already established successful base for centralization, since thanks to the CEE pilot most of the CEE transports logistics were already centralized in Poland.</p>
<i>What were the phases of implementation of the Project?</i>	
<ol style="list-style-type: none"> <li>1. Bring in house the transports managed by DHL;</li> <li>2. Primary Transport (transports from factory to distribution centers), inter-company transports since sending location and receiving location are both owned by Unilever;</li> <li>3. Inbound Transport (transport from suppliers to factories);</li> <li>4. Ocean Freight (transports in containers);</li> <li>5. Secondary Transport (transports from distribution centre to customers);</li> </ol>	
<i>What is in stored for Katowice Hub in the future?</i>	
Optimization through route optimization projects like Cross-Dock model to reduce CO2 footprint and transport costs and the implementation of UTMS – Unilever Transport Management System software.	Creation of Improvement and Logistic Claims teams to improve the overall service quality and reduce additional costs related to transports.